

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 November 2003 (06.11.2003)

PCT

(10) International Publication Number
WO 03/091545 A1

(51) International Patent Classification⁷: F01C 1/344,
21/08

(21) International Application Number: PCT/FI03/00314

(22) International Filing Date: 17 April 2003 (17.04.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
20020793 24 April 2002 (24.04.2002) FI

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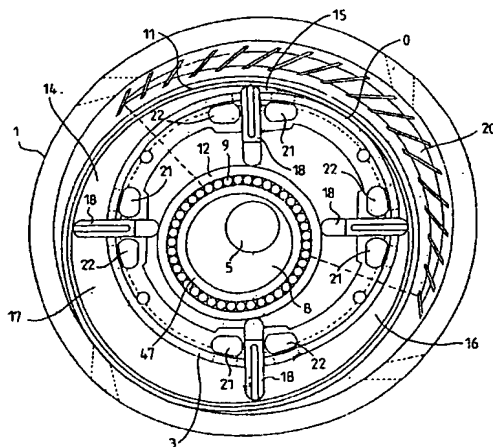
(81) Designated States (*national*): AE, AG, AL, AM, AT (util-
ity model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,

CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (util-
ity model), DE, DK (utility model), DK, DM, DZ, EC, EE
(utility model), EE, ES, FI (utility model), FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU,
SC, SD, SE, SG, SK (utility model), SK, SL, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO utility model (GH),
ARIPO patent (GH), ARIPO utility model (GM), ARIPO
patent (GM), ARIPO utility model (KE), ARIPO patent
(KE), ARIPO utility model (LS), ARIPO patent (LS),
ARIPO utility model (MW), ARIPO patent (MW), ARIPO
utility model (MZ), ARIPO patent (MZ), ARIPO utility
model (SD), ARIPO patent (SD), ARIPO utility model
(SL), ARIPO patent (SL), ARIPO utility model (SZ),
ARIPO patent (SZ), ARIPO utility model (TZ), ARIPO
patent (TZ), ARIPO utility model (UG), ARIPO patent
(UG), ARIPO utility model (ZM), ARIPO patent (ZM),
ARIPO utility model (ZW), ARIPO patent (ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: HYDRAULIC MOTOR



(57) Abstract: The invention relates to a hydraulic motor having an outer casing (1) and eccentric means (11, 12, 8) for rotating a power shaft (5) by means of fluid through a pressure chamber arrangement (14 to 17). The eccentric means comprise an eccentric part (8) formed in the power shaft (5), a first eccentric ring (11) between the outer casing (1) and an inner casing (3), and a second eccentric ring (12) mounted with bearings around the eccentric part and connected fixedly and concentrically to the first eccentric ring, whereby the pressure chamber arrangement is located between the first eccentric ring and the inner casing so that the first eccentric ring drives the power shaft through the second eccentric ring (12), and the eccentric rings (11, 12) form a substantially non-rotating entity that only performs an eccentric movement and by means of this eccentric movement rotates the power shaft.

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patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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Published:

— with international search report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 03/00314

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: F01C 1/344, F01C 21/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: F01C, F04C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 447701 C (R.J.P.E. COZETTE), 27 July 1927 (27.07.27), figure 1 --	1,2,4
X	DE 20113784 U1 (IAV GMBH INGENIEURGESELLSCHAFT AUTO UND VERKEHR), 8 May 2002 (08.05.02), figure 1 --	1,2
X	US 2366765 A (S.F. ANDERSON), 9 January 1945 (09.01.45), figure 2 --	1,2
X	US 2581172 A (R.H. CARSON), 1 January 1952 (01.01.52), figure 5 --	1,2

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Date of the actual completion of the international search

8 July 2003

Date of mailing of the international search report

09 -07- 2003

Name and mailing address of the ISA/

Swedish Patent Office

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International application No.

PCT/FI 03/00314

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3539281 A (L. KRAMER), 10 November 1970 (10.11.70), figure 1 --	1,2
X	US 5558511 A (L.G. HEDELIN), 24 Sept 1996 (24.09.96), figure 2 --	1,2
X	US 2001055538 A1 (W. SCHNEIDER ET AL), 27 December 2001 (27.12.01) -- -----	1,2

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INTERNATIONAL SEARCH REPORT

Information on patent family members

29/06/03

International application No.

PCT/FI 03/00314

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
DE	447701	C	27/07/27	NONE	
DE	20113784	U1	08/05/02	NONE	
US	2366765	A	09/01/45	NONE	
US	2581172	A	01/01/52	NONE	
US	3539281	A	10/11/70	BE 736416 A DE 1936492 A FR 2014685 A GB 1215667 A	31/12/69 22/01/70 17/04/70 16/12/70
US	5558511	A	24/09/96	AU 680208 B AU 5346394 A BR 9307238 A DE 69329469 D,T EP 0682740 A,B SE 0682740 T3 JP 8503045 T SE 9203034 A WO 9409260 A SE 9300841 D	24/07/97 09/05/94 24/08/99 23/05/01 22/11/95 02/04/96 16/04/94 28/04/94 00/00/00
US	2001055538	A1	27/12/01	DE 10008407 A EP 1118773 A	02/08/01 25/07/01

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